Ser. No. 09/690,273 filed October 17, 2000, Fan Kong

Examiner: Kuo Liang J. TANG, GAU 2122

Docket No. 50325-0564

LISTING OF CLAIMS

2

1 1. (previously amended) In a network device configured by a configuration command, a 2 method for automatically re-constructing said configuration command based on data stored 3 in a configuration database during parsing and processing of the configuration command by 4 the network device, the method comprising the steps of: 5 creating and storing a linear command regeneration template that includes at least one 6 linear node template in a memory, each linear node template corresponding to 7 a command element in said configuration command; and 8 regenerating said configuration command based on said linear command regeneration 9 template and based on data from the configuration database. 1 2. (previously amended) The method of Claim 1 wherein the step of creating and storing 2 a linear command regeneration template further comprises: 3 storing a begin option node template in said at least one linear node template. 1 3. (previously amended) The method of Claim 1 wherein the step of creating and 2 storing a linear command regeneration template further comprises: 3 storing a next option node template in said at least one linear node template. 1 4. (previously amended) The method of Claim 1 wherein the step of creating and 2 storing a linear command regeneration template further comprises: 3 storing an end option node template in said at least one linear node template. 1 5. (previously amended) The method of Claim 1 wherein the step of creating and 2 storing a linear command regeneration template further comprises: 3 storing a begin option node template, a next option node template, and an end option 4 node template in said at least one linear node template. (previously amended) The method of Claim 1 wherein the step of regenerating said 1 6.

configuration command further comprises the step of:

Ser. No. 09/690,273 filed October 17, 2000, Fan Kong

Examiner: Kuo Liang J. TANG, GAU 2122

Docket No. 50325-0564

- filtering said linear command regeneration template to locate at least one linear node template.
- 1 7. (previously amended) The method of Claim 1 wherein the step of regenerating said
- 2 configuration command further comprises the step of:
- 3 scanning the linear command regeneration template to find a begin option node
- 4 template, said begin option node template including an identification.
- 1 8. (Cancelled)
- 1 9. (previously amended) The method of Claim 7, wherein the step of regenerating said
- 2 configuration command further comprises the steps of:
- 3 scanning the linear command regeneration template to find an end option node
- 4 template that includes said identification of the begin option node template.
- 1 10. (previously amended) The method of Claim 6 wherein the step of regenerating said
- 2 configuration command further comprises the step of:
- 3 passing said filtered linear node template from the linear command regeneration
- 4 template to an evaluate branches process.
- 1 11. (previously amended) The method of Claim 10 further comprising the step of:
- 2 evaluating at least one branch in said filtered linear node template from the linear
- 3 command regeneration template by said evaluate branches process.
- 1 12. (previously amended) The method of Claim 10 further comprising the step of:
- 2 finding a branch in said filtered linear node template.
- 1 13. (previously amended) The method of Claim 12, further comprising the step of:
- 2 validating said branch based on data from said configuration database.
- 1 14. (currently amended) A computer-readable medium carrying one or more sequences
- 2 of instructions for automatically re-constructing a network device configuration command
- 3 that was used to configure a network device based on data stored in a configuration database,

4	wherein parsing and processing of the configuration command by the network device		
5	resulted in storage of data in the configuration database, and wherein execution of the		
6	sequences of instructions by one or more processors causes said one more processors to carr		
7	out the steps of:		
8	creating and storing a linear command regeneration template that includes at least one		
9	linear node template in a memory, each linear node template corresponding to		
10	a command element in said configuration command; and		
11	regenerating said configuration command based on said linear command regeneration		
12	template and based one on data from the configuration database.		
1	15. (previously amended) The medium of Claim 14 wherein said one or more sequences		
2	of instructions for creating and storing a linear command regeneration template further		
3	comprises one or more sequences of instructions for:		
4	storing a begin option node template in said at least one linear node template.		
1	16. (previously amended) The medium of Claim 14 wherein said one or more sequences		
2	of instructions for creating and storing a linear command regeneration template further		
3	comprises one or more sequences of instructions for:		
4	storing a next option node template in said at least one linear node template.		
1	17. (previously amended) The medium of Claim 14 wherein said one or more sequences		
2	of instructions for creating and storing a linear command regeneration template further		
3	comprises one or more sequences of instructions for:		
4	storing an end option node template in said at least one linear node template.		
1	18. (currently amended) The medium of Claim 14 wherein said one or more sequences		
2	of instructions for creating and storing a linear command regeneration template further		
3	comprises one or more sequences of instructions for:		
4	storing a begin option node template, a next option node template, and an end option		
5	node template in said at least one linear node template.		

6	19.	(previously amended) The medium of Claim 14 wherein said one or more sequences		
7	of ins	tructions for regenerating said configuration command further comprises one or more		
8	sequences of instructions for:			
9		filtering said linear command regeneration template to locate at least one linear node		
10		template.		
1	20.	(previously amended) The medium of Claim 14 wherein said one or more sequences		
2		of instructions for regenerating said configuration command further comprises one or		
3		more sequences of instructions for:		
4		scanning the linear command regeneration template to find a begin option node		
5		template, said begin option node template including an identification.		
1	21.	(cancelled)		
1	22.	(previously amended) The medium of Claim 20, wherein said one or more sequences		
2		of instructions for regenerating said configuration command further comprises one or		
3		more sequences of instructions for:		
4		scanning the linear command regeneration template to find an end option node		
5		template that includes said identification of the begin option node template.		
1	23.	(previously amended) The medium of Claim 19 wherein the one or more sequences		
2		of instructions for regenerating said configuration command further comprises one or		
3		more sequences of instructions for:		
4		passing said filtered linear node template from the linear command regeneration		
5		template to an evaluate branches process.		
1	24.	(previously amended) The medium of Claim 23 further comprising one or more		
2		sequences of instructions for:		
3		evaluating at least one branch in said filtered linear node template from the linear		
4		command regeneration template by said evaluate branches process.		

1	25.	(previously amended) The medium of Claim 23 further comprising one of more
2		sequences of instructions for:
3		finding a branch in said filtered linear node template.
1	26.	(currently amended) The medium of Claim 25 further comprising one or more
2		sequences of instructions for:
3		validating said branch based one on data from said configuration database.
1	27-39	(cancelled)
1	40.	(previously amended) In a network device configured by a configuration command,
2	an app	aratus for automatically re-constructing said configuration command based on data
3	stored	in a configuration database during parsing and processing of the configuration
4	comm	and by the network device, the apparatus comprising:
5		means for creating and storing a linear command regeneration template that includes
6		at least one linear node template in a memory, each linear node template
7		corresponding to a command element in said configuration command; and
8		means for regenerating said configuration command based on said linear command
9		regeneration template and based on data from the configuration database.
1	41.	(previously amended) The apparatus of Claim 40 wherein said means for creating
2	and sto	oring a linear command regeneration template further comprises:
3		means for storing a begin option node template in said at least one linear node
4		template.
1	42.	(previously amended) The apparatus of Claim 40 wherein said means for creating
2	and sto	oring a linear command regeneration template further comprises:
3		means for storing a next option node template in said at least one linear node
4		template.

1	43.	(previously amended) The apparatus of Claim 40 wherein said means for creating			
2	and storing a linear command regeneration template further comprises:				
3		means for storing an end option node template in said at least one linear node			
4		template.			
1	44.	(previously amended) The apparatus of Claim 40 wherein said means for creating			
2	and st	oring a linear command regeneration template further comprises:			
3		means for storing a begin option node template, a next option node template, and an			
4		end option node template in said at least one linear node template.			
1	45.	(previously amended) The apparatus of Claim 40 wherein said means for			
2	regene	erating said configuration command further comprises:			
3		means for filtering said linear command regeneration template to locate at least one			
4		linear node template.			
1	46.	(previously amended) The apparatus of Claim 45 wherein said means for filtering			
2	said li	near command regeneration template to locate comprises:			
3		means for scanning said linear command regeneration template to find a begin option			
4		node template, said begin option node template including an identification.			
1	47.	(currently amended) A method of automatically re-constructing a network device			
2	config	guration command based on configuration data stored in the network device, wherein			
3	parsing and processing of the configuration command resulted in storage of the configuration				
4	data, wherein the command comprises at least one command element that can have a				
5	plural	ity of values, the method comprising the computer-implemented steps of:			
6		creating and storing at least one linear node in a parse tree for representing said at			
7		least one command element, wherein said linear node comprises a begin			
8		option node having a single entrance; a next option node coupled to said being			
9		begin option node having a single entrance; and an end option node coupled to			
10		said being begin option node wherein said end option node has a single exit;			

11	creating and storing a linear command regeneration template in a memory, wherein		
12	the linear command regeneration template comprises information identifying		
13	how to regenerate a configuration command; and		
14	regenerating the command based on the linear command regeneration template and		
15	based on data from said configuration data stored in the network device.		
1	48. (previously presented) The method of Claim 47, wherein creating and storing at least		
2	one linear node further comprises connecting a plurality of branches to said begin option		
3	node.		
1	49. (previously presented) The method of claim 48 wherein each branch in said plurality		
2	of branches represents a different value of said at least one command element.		
2	of branches represents a different variet of said at roast one communication.		
1	50. (previously presented) The method of claim 48, wherein each branch is associated		
2	with a next option node.		
1	51. (previously presented) The method of claim 47, wherein said parse tree further		
2	comprises a binary node.		
1	52. (currently amended) The method of claim 47, wherein said command includes		
2	another command element that can have a plurality of values, said method further comprising		
3	representing said another command element by another linear node in said parse tree wherein		
4	said another linear node comprises a second being begin option node having a single entrance		
5	connected to said exit of said end option node, a second next option node coupled to said		
6	another begin option node, and a second end option node coupled to said another begin		
7	option node wherein said another end option node has a single exit.		
1	53. (previously presented) A method of automatically regenerating a network device		
2	configuration command based on configuration data stored in the network device, wherein		
3	parsing and processing of the configuration command resulted in storage of the configuration		
4	data, the method comprising the computer-implemented steps of:		

5	creating and storing a linear command regeneration template including a linear node
6	template, wherein the linear node template comprises a begin option node
7	template, a next option node template, and an end option node template;
8	regenerating the configuration command based on the linear command regeneration
9	template and based on data from a database, by:
10	scanning the linear command regeneration template to find an end option node
11	template that includes an identification of the begin option node template;
12	passing the linear node template from the linear command regeneration template to an
13	evaluate branches process;
14	evaluating at least one branch in the linear node template from the linear command
15	regeneration template by the evaluate branches process;
16	finding a branch in the linear node template; and
17	validating the branch using the configuration data stored in the network device.
	$m{c}$